

AMENDMENTS TO THE CLAIMS

Please **REWRITE** claims 1–3, 6–9, 11–17, 20–23, and 25. Please **CANCEL** claims 10 and 24. For the Examiner's convenience, this Amendment includes the text of all claims under examination, a parenthetical expression for each claim to indicate the status of the claim, and markings to show changes relative to the immediate prior version of each currently amended claim.

1. (Currently Amended) An image reading apparatus, comprising:

a light source adapted to illuminate for illuminating a document;

a plurality of image sensing elements adapted to output electrical signals an image sensing element for outputting an electrical signal in accordance with an input light quantity;

a first reference member;

a second reference member;

a timer adapted to measure for measuring a time since said light source is turned on; and

a controller adapted to determine control means for determining whether the time measured by said timer reaches a predetermined time that is until an image signal value of the image sensing element that outputs a maximum signal value changes to a predetermined rate since said light source is turned on, in a case that the predetermined time has not elapsed, acquiring shading correction data by a first method using said first reference member illuminated by said light source, and in a case that the predetermined time has elapsed, acquiring shading correction data by a second method using said second reference member illuminated by said light source.

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2. (Currently Amended) The apparatus according to claim 1, wherein

in the first method, a coefficient for uniformly changing level of the shading correction data is generated on the basis of data obtained by illuminating said first reference member by said light source and scanning said first reference member by said image sensing elements [[element]], and

in the second method, shading correction data of each pixel in a main scanning direction is generated by illuminating said second reference member by said light source and scanning said second reference member by said image sensing elements [[element]].

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3. (Currently Amended) The apparatus according to claim 1, further comprising:
a correction unit ~~correction means~~ which uses the shading correction data to perform shading correction on the electrical signals ~~signal~~ output from said image sensing elements [[element]].

4. (Original) The apparatus according to claim 1, wherein said first and second reference members comprise white plates.

5. (Original) The apparatus according to claim 4, wherein
said first reference member is set at an end portion of a main scanning direction at a predetermined position of a subscanning direction, and
said second reference member is set in the main scanning direction at a predetermined position in the subscanning direction.

6. (Currently Amended) The apparatus according to claim 1, wherein the determination by said controller control means is performed before each document sheet is read.

7. (Currently Amended) The apparatus according to claim 6, further comprising:
a document feeder capable of successively supplying a plurality of document sheets,
wherein said controller control means performs the determination in a case that said
document feeder supplies each document sheet to a predetermined position.

8. (Currently Amended) The apparatus according to claim 1, wherein in a case that a first
document sheet is to be read after said light source is turned on, said controller control
means acquires shading correction data using said second reference member before start of
read of the document sheet.

9. (Currently Amended) The apparatus according to claim 8, wherein in a case that a first
document sheet is to be read after said light source is turned on, and the predetermined time
has not elapsed, said controller control means skips acquisition of shading correction data
using said first reference member.

10. (Canceled).

11. (Currently Amended) A control apparatus for an image reading unit having a light source
adapted to illuminate for illuminating a document, a plurality of image sensing elements
adapted to output electrical signals an image sensing element for outputting an electrical

signal in accordance with an input light quantity, a first reference member, and a second reference member, comprising:

a timer adapted to measure for measuring a time since the light source is turned on; and a controller adapted to determine control means for determining whether the time measured by said timer reaches a predetermined time that is until an image signal value of the image sensing element that outputs a maximum signal value changes to a predetermined rate since said light source is turned on, in a case that the predetermined time has not elapsed, acquiring shading correction data by a first method using the first reference member illuminated by said light source, and in a case that the predetermined time has elapsed, acquiring shading correction data by a second method using the second reference member illuminated by said light source.

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12. (Currently Amended) A hybrid apparatus comprising:

a light source adapted to illuminate for illuminating a document;

a plurality of image sensing elements adapted to output electrical signals an image sensing element for outputting an electrical signal in accordance with an input light quantity;

a first reference member;

a second reference member;

a timer adapted to measure for measuring a time since said light source is turned on;

a controller adapted to determine control means for determining whether the time measured by said timer reaches a predetermined time that is until an image signal value of the image sensing element that outputs a maximum signal value changes to a predetermined rate since said light source is turned on, in a case that the

predetermined time has not elapsed, acquiring shading correction data by a first method using said first reference member illuminated by said light source, and in a case that the predetermined time has elapsed, acquiring shading correction data by a second method using said second reference member illuminated by said light source; a correction unit adapted to correct the electrical signals output from said image sensing elements ~~correction means for correcting the electrical signal output from said image sensing element~~, and to output ~~outputting~~ an image signal; and a print unit adapted to print ~~print means for printing~~ an image of the document on a print medium on the basis of the image signal corrected by said correction unit [[means]], wherein said correction unit [[means]] performs shading correction using at least the shading correction data.

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13. (Currently Amended) The apparatus according to claim 12, further comprising: an output unit adapted to output the electrical signals ~~output means for outputting the electrical signal~~ corrected by said correction unit [[means]] to an external device via a communication line; and an input unit adapted to input ~~input means for inputting~~ an image signal from the external device via the communication line, wherein said print unit [[means]] prints an image on a print medium on the basis of the image signal input via said input unit [[means]].

14. (Currently Amended) A facsimile apparatus, comprising:
a light source adapted to illuminate ~~for illuminating~~ a document;

a plurality of image sensing elements adapted to output electrical signals ~~an image sensing element for outputting an electrical signal~~ in accordance with an input light quantity;

a first reference member;

a second reference member;

a timer adapted to measure for measuring a time since said light source is turned on;

a controller adapted to determine control means for determining whether the time measured by said timer reaches a predetermined time that is until an image signal value of the image sensing element that outputs a maximum signal value changes to a predetermined rate since said light source is turned on, in a case that the predetermined time has not elapsed, acquiring shading correction data by a first method using said first reference member illuminated by said light source, and in a case that the predetermined time has elapsed, acquiring shading correction data by a second method using said second reference member illuminated by said light source;

a correction unit adapted to correct the electrical signals output from said image sensing elements ~~correction means for correcting the electrical signal output from said image sensing element, and to output outputting~~ an image signal;

an output unit adapted to output the electrical signals ~~output means for outputting the electrical signal~~ corrected by said correction unit [[means]] to an external device via a communication line;

an input unit adapted to input input means for inputting an image signal from the external device via the communication line; and

a print unit adapted to print print means for printing an image on a print medium on the basis of the image signal input via said input unit [[means]],

wherein said correction unit [[means]] performs shading correction using at least the shading correction data.

15. (Currently Amended) A control method for an image reading unit having a light source adapted to illuminate for illuminating a document, a plurality of image sensing elements adapted to output electrical signals an image sensing element for outputting an electrical signal in accordance with an input light quantity, a first reference member, and a second reference member, comprising:

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a measurement step of measuring a time since the light source is turned on;

a determination step of determining whether the measured time measured in said measurement step reaches a predetermined time that is until an image signal value of the image sensing element that outputs a maximum signal value changes to a predetermined rate since said light source is turned on;

a first acquisition step of acquiring first shading correction data using the first reference member illuminated by said light source in a case that the predetermined time has not elapsed; and

a second acquisition step of acquiring second shading correction data using the second reference member illuminated by said light source in a case that the predetermined time has elapsed.

16. (Currently Amended) The method according to claim 15, wherein

said first acquisition step comprises the first shading correction data is acquired by generating a coefficient for uniformly changing level of the shading correction data

on the basis of data obtained by illuminating the first reference member by the light source and scanning the first reference member by the image sensing elements element, and

said second acquisition step comprises the second shading correction data is acquired by generating shading correction data of each pixel in a main scanning direction by illuminating the second reference member by the light source and scanning the second reference member by the image sensing elements element.

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17. (Currently Amended) The method according to claim 15, further comprising:
~~a correction step of performing shading correction on the electrical signals signal output from the image sensing elements element by using the first shading correction data or the second shading correction data.~~
18. (Original) The method according to claim 15, wherein the first and second reference members comprise white plates.
19. (Original) The method according to claim 18, wherein
the first reference member is set at an end portion of a main scanning direction at a predetermined position of a subscanning direction of a document, and
the second reference member is set in the main scanning direction at a predetermined position in the subscanning direction.
20. (Currently Amended) The method according to claim 15, wherein said determination

[[step]] and said ~~first or second~~ acquisition [[step]] of the first shading correction data or the second shading correction data are performed before each document sheet is read.

21. (Currently Amended) The method according to claim 20, wherein
the image reading unit further comprises a document feeder capable of successively
supplying a plurality of document sheets, and
said determination [[step]] and said ~~first or second~~ acquisition [[step]] of the first shading correction data or the second shading correction data are performed in a case that the document feeder supplies each document sheet to a predetermined position.

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22. (Currently Amended) The method according to claim 15, further comprising: wherein the method further comprises a document determination step of determining whether a document sheet is a first document sheet after the light source is turned on, [[and]]
wherein in a case that the document sheet is determined in said document determination step to be the first document sheet, said second acquisition step of the second shading correction data is executed before start of read of the document sheet regardless of a determination result in said determination step.

23. (Currently Amended) The method according to claim 22, wherein in a case that the document sheet is determined in said document determination step to be the first document sheet, said first acquisition [[step]] of the first shading correction data is skipped regardless of the determination result in said determination step.

24. (Canceled).

25. (Currently Amended) A computer program product comprising a computer usable medium having computer readable program code means embodied in said medium for a control method for an image reading unit having a light source adapted to illuminate for illuminating a document, a plurality of image sensing elements adapted to output electrical signals an image sensing element for outputting an electrical signal in accordance with an input light quantity, a first reference member, and a second reference member, said product including:

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first computer readable program code means for measuring a time since the light source is turned on;

second computer readable program code means for determining whether the measured time measured in the measurement step reaches a predetermined time that is until an image signal value of the image sensing element that outputs a maximum signal value changes to a predetermined rate since said light source is turned on;

third computer readable program code means for acquiring shading correction data using the first reference member illuminated by said light source in a case that the predetermined time has not elapsed; and

fourth computer readable program code means for acquiring shading correction data using the second reference member illuminated by said light source in a case that the predetermined time has elapsed.